Alg. 2 Warm Up # 6-4

Factor completely:

1. $3x^2 - 6x - 24$

2. $4x^2 - 25$

3. $6x^3 - 10x$

4. $2x^3 + 5x^2 - 6x - 15$

Purple worksheet:

a) $y = \frac{1}{x+2}$

b) $y = x^2 - 5$

c) $y = (x-3)^3$

d) $y = 2^x - 3$

e) $y = 3x - 6$

f) $y = (x+2)^3 + 3$

g) $y = (x+3)^2 - 6$

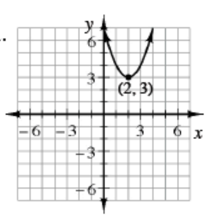
h) $y = -(x-3)^2 + 6$

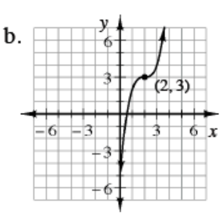
Turn in CP's Week 6
Warm up
2- #64, 66, 67
Purple (2- #95 revised)

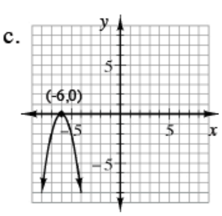
HW Questions:

Review & Preview

2-107. Use the point (h, k) to help you write a possible equation for each graph shown below.

a. 

b. 

c. 

2-108. Find the domain and range for each of the graphs in the previous problem.

2-109. For each of the following equations, describe how d transforms the parent graph.

a. $y = dx^3$

b. $y = x^2 - d$

c. $y = (x-d)^2 + 7$

d. $y = \frac{1}{x} + d$

down

Rt d

2-110. Find the equation of an exponential function that passes through each pair of points.

a. (3,0.05) and (5,0.0125)

b. (1,16) and (4,128)

x y

x	3	5
y	0.05	0.0125

×b ×b

$0.05b^2 = 0.0125$

$y = ab^x$

$16 = ab^1$

$16 = a(2)$

$a = 8$

$\frac{128}{16} = \frac{\cancel{a}b^4}{\cancel{a}b}$

$\sqrt[3]{8} = \sqrt[3]{b^3}$

$b = 2$

$y = 8(2)^x$

2-111. Rewrite each of the following expressions so that your answers have no negative or fractional exponents.

a. $5^{-2} \cdot 4^{1/2}$

b. $\frac{3xy^2z^{-2}}{(xy)^{-1}z^2}$

c. $(3m^2)^3(2mn)^{-1}(8n^3)^{2/3}$

d. $(5x^2y^3z)^{1/3}$

$3^3 \cdot (m^2)^3 \left(\frac{1}{2mn}\right) 8^{2/3} \cdot (n^3)^{2/3}$

$\frac{3}{1} \cdot \frac{2}{3}$

$27m^6 \left(\frac{1}{2mn}\right) \left(\sqrt[3]{8}\right)^2 \; n^2$

$\frac{27m^{\cancel{6}\,5}}{1} \cdot \frac{1}{\cancel{2}mn} \cdot \frac{\cancel{4}\,2}{1} \cdot \frac{n^{\cancel{2}}}{1} = 27m^5 \cdot 2n$

$= \boxed{54m^5n}$

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$\frac{3xy^2xy^1}{z^2 \cdot z^2}$

$\frac{3x^2y^3}{z^4}$

2-112. Tino is a businessman who flies to sales conferences regularly. He flies from Seattle to Kansas City once each month and from Seattle to Los Angeles once every 3 months (March, June, September, and December). The flight to Kansas City adds 1500 miles each way to his frequent flier account, while flying to Los Angeles adds 950 miles each way to his account. In January last year, he started with 12,000 miles in his account. In June and December he withdrew 25000 miles from his account for a ticket to Florida for vacation.

a. Make a table and a graph that shows the balance in Tino's frequent flier account at the end of each month last year.

b. What was the highest number of miles that Tino had in his account during the year? In which month did this occur?

c. How many miles did Tino have in his account at the beginning of this year?

d. If Tino continues this same pattern of flying will he have enough miles to go on both of his usual vacations this year? Why or why not?

let x = time in months

y = # of FF miles.

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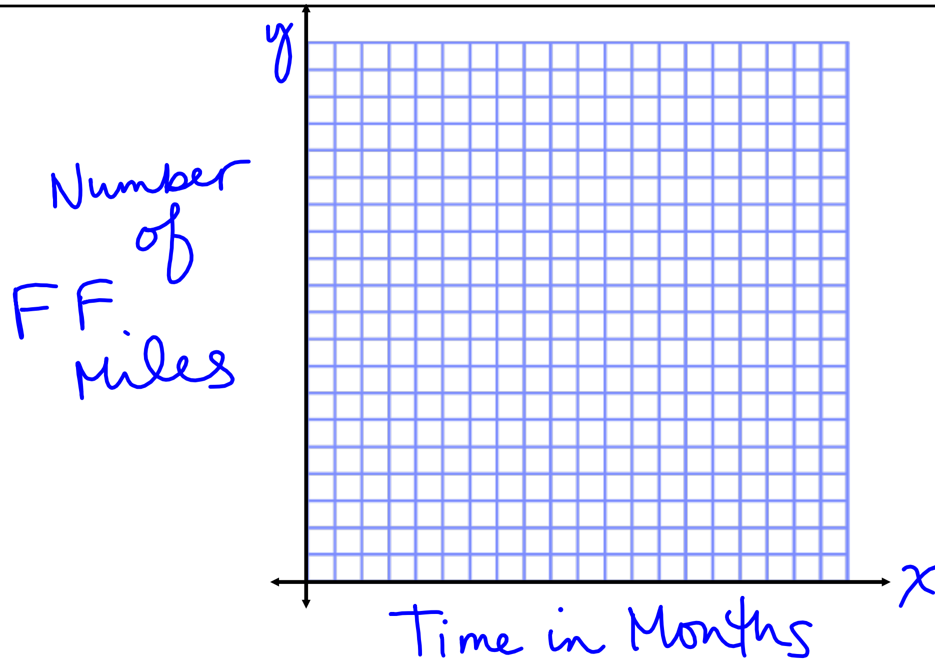
End of	x	y
Jan	1	12,000 + 1500 + 1500 = 15,000
	2	15,000 + 3000 = 18,000
March	3	18,000 + 3000 + ______ =
	4	
	5	
June	6	
	7	
	8	
	9	
	10	
	11	
	12	



2-113. Solve each equation for x (that is, put it in $x =$ ___ form).

a. $y = 2(x-17)^2$

b. $(y+7)^3 = \left(\cancel{\sqrt[3]{x+5}}\right)^3$

$(y+7)^3 - 5 = x + \cancel{5}$
$\quad\quad\quad\quad\quad\quad\quad\quad -5$

Pink Worksheet:

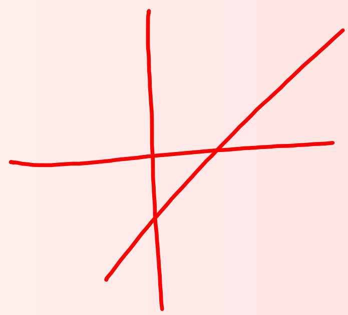
Point Slope Form of a line: $y - y_1 = m(x - x_1)$

Where $(x_1\ y_1)$ is any point on the line.

Where does it come from? Why is it powerful?

$$(x - x_1)\,m = \frac{y - y_1}{\cancel{(x - x_1)}}\,\cancel{(x - x_1)}$$

$y = mx + b$



Example: Write an equation of the line through:

(-10, 3) and (-2, -5)

First find slope: $m = \dfrac{3 + 5}{-10 + 2} = -1$

$y - 3 = -x - 10$
$\quad +3 \qquad\quad +3$

Now just plug in m, x_1 and y_1

$y - 3 = -1(x + 10)$

$y + 5 = -1(x + 2) - 5$
$\quad\ -5$

$y = -x - 2 - 5$

$y = -x - 7$

HW:

Pink WS, Point - Slope form

and Distance with other review.

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$